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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/546,132	12/12/2005	**Rulin Fan**	EISN-009USRCE	9915

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EXAMINER	
OLSON, ERIC	
ART UNIT	**PAPER NUMBER**
1623	
MAIL DATE	**DELIVERY MODE**
05/20/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/546,132	FAN, RULIN	
	Examiner	Art Unit	
	ERIC S. OLSON	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *120-123,125,126,128,130-133,135,136 and 138* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *120-123,125,126,128,130-133,135,136 and 138* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

This office action is a response to applicant's communication submitted March 9, 2009, wherein the rejections of record in the previous office action are traversed. This application is a national stage application of PCT/US04/04921, filed February 18, 2004, which claims benefit of provisional application 60/448839, filed February 20, 2003.

Claims 120-123, 125, 126, 128, 130-133, 135, 136, and 138 are pending in this application.

Claims 120-123, 125, 126, 128, 130-133, 135, 136, and 138 as amended are examined on the merits herein.

The following rejections of record in the previous office action are maintained:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 120-123 and 130-133 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossignol et al. (US patent 6184366, of record in previous action) in view of Sanghvi et al. (US patent 6809195, of record in previous action)

Rossignol et al. discloses the synthesis of lipopolysaccharides of which the claimed compounds are substructures. (columns 3 and 4, top of page) Specifically, a synthesis is disclosed in which two lipomonosaccharide components, corresponding to

the left and right halves of the lipopolysaccharide, are synthesized and then joined together. (columns 13-14) The left half bears a close structural resemblance to the compounds of claims 120-123 and 130-133. Columns 34-36 and 46 disclose synthetic intermediates that are the same as those claimed in instant claims 120-123 and 130-133, except that they have a NHTroc protecting group in place of the fatty acid amide moiety. Rossignol et al. does not disclose the specific claimed compounds. However, if the order of the synthetic steps performed by Rossignol et al. were changed so that the fatty amide group were attached first before the other synthetic steps, the resulting intermediates would be identical to the compounds of claims 120-123 and 130-133.

Sanghvi et al. discloses a process for preparing oligonucleotides. (column 4 lines 10-35) One step in the synthesis involves the oxidation of a phosphite group to a phosphate. (column 5 lines 45-50) Oxidizing reagents suitable for carrying out this step include a wide range of different reagents which are not oxone®. (column 5 line 64 - column 6 line 8)

It would have been obvious to one of ordinary skill in the art at the time of the invention to carry out the synthesis described by Rossignol et al. using a different order of synthetic steps that would result in the claimed intermediates, using any of the methods described by Sanghvi et al. to oxidize the phosphorus atom to phosphate. One of ordinary skill in the art would have been motivated to carry out this synthesis because Rossignol et al. already teaches all of the individual steps involved in synthesizing this saccharide. Adding the functional groups in one order or another would be well within the ordinary and routine level of skill in the art.

Therefore the invention taken as a whole is *prima facie* obvious.

Response to Arguments: Applicant's arguments, submitted March 9, 2009, have been fully considered and not found to be persuasive to remove the rejection. Applicant argues that the state of the synthetic art as evidenced by the Foy declaration is such that one of ordinary skill in the art would not have been able to switch the order of the different steps carried out in the synthetic scheme of Rossignol et al. due to the unpredictability of the art. However, regardless of the difficulties encountered with one particular set of reaction conditions, one of ordinary skill in the art would have been able to choose appropriate conditions to carry out any well known synthetic step. Overcoming the difficulties associated with these synthetic steps is part of the ordinary and routine level of skill in the art. Because the claims relate not to a specific chemical reaction method utilizing certain defined conditions but rather to intermediates that can be made under a variety of reaction conditions, one of ordinary skill in the art would have had a significant amount of leeway in choosing synthetic conditions that would be reasonably expected to yield the desired intermediate and to be compatible with whatever chemical groups would be present during the chemical transformations.

Furthermore, Applicant argues that there is no motivation in the prior art to arrive at the specific reaction intermediates pictured in the claims, and that using a synthetic scheme involving these intermediates requires knowledge gleaned from Applicant's disclosure. However, making these intermediates requires no knowledge of Applicant's disclosure because the synthetic scheme producing them is one of a finite number of predictable ways to carry out the chemical transformations suggested by Rossignol.

Specifically, Rossignol teaches a synthetic scheme involving the attachment and removal of a number of chemical groups on a carbohydrate skeleton. There are a finite number of orders in which the steps can be carried out, and one of ordinary skill in the art would be able to choose a synthetic scheme from among these different orders.

As regards Applicant's argument that the Foy declaration demonstrates that the feasibility of Applicant's synthetic route is unexpected, It is noted that the instant claims are drawn to compounds and not to particular chemical reaction methods. While it is possible that the particular reaction conditions used by Applicant produce unexpectedly better results than those that would be expected by one of ordinary skill in the art for that particular chemical reaction, it is not unexpected that one of ordinary skill in the art could make a successful synthetic route going through a particular relatively simple intermediate when the reactions and functional groups involved are conventional in the synthetic art.

For these reasons the rejection is deemed proper and made **FINAL**.

Claims 125, 126, 128, 135, 136, and 138 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossignol et al. (US patent 6184366, of record in previous action) in view of Greene et al. (of record in previous action)

Rossignol et al. discloses the synthesis of lipopolysaccharides of which the claimed compounds are substructures. (columns 3 and 4, top of page) Specifically, a synthesis is disclosed in which two lipomonosaccharide components, corresponding to the left and right halves of the lipopolysaccharide, are synthesized and then joined

together. (columns 13-14) The right half bears a close structural resemblance to the compounds of claims 125, 126, 128, 135, 136, and 138. Columns 37-44 disclose synthetic intermediates that are the same as those claimed in instant claims 125, 126, 128, 135, 136, and 138, except that they have a diphenyl ketone imine protecting group in place of the fatty acid amide moiety. Rossignol et al. does not disclose the specific claimed compounds. However, if the order of the synthetic steps performed by Rossignol et al. were changed so that the fatty amide group were attached first before the other synthetic steps, the resulting intermediates would be identical to the compounds of claims 125, 126, 128, 135, 136, and 138.

Greene et al. discloses various methods of introducing an allyl carbonate protecting group. (pp. 183-184) These methods do not involve using phosgene.

It would have been obvious to one of ordinary skill in the art at the time of the invention to carry out the synthesis described by Rossignol et al. using a different order of synthetic steps that would result in the claimed intermediates, using any of the methods described by Greene et al. to introduce the allyl carbonate group. One of ordinary skill in the art would have been motivated to carry out this synthesis because Rossignol et al. already teaches all of the individual steps involved in synthesizing this saccharide. Adding the functional groups in one order or another would be well within the ordinary and routine level of skill in the art.

Therefore the invention taken as a whole is *prima facie* obvious.

Response to Arguments: Applicant's arguments, submitted March 9, 2009, have been fully considered and not found to be persuasive to remove the rejection. Applicant

makes the same arguments with regard to this ground of rejection as those made with respect to the rejection of Rossignol et al. in view of Sanghvi et al. above, which are not found to be persuasive for the same reasons.

Therefore the rejection is deemed proper and made **FINAL**.

Conclusion

No claims are allowed in this application. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC S. OLSON whose telephone number is (571)272-9051. The examiner can normally be reached on Monday-Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on (571)272-0627. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric S Olson/
Examiner, Art Unit 1623
5/17/2009

/Shaojia Anna Jiang/
Supervisory Patent Examiner, Art Unit 1623